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**From:** McGrath, Jesse [mcgrath.jesse@epa.gov]  
**Sent:** 4/26/2017 3:09:44 PM  
**To:** Compher, Michael [compher.michael@epa.gov]; Hamilton, Scott [hamilton.scott@epa.gov]; Qazzaz, Bilal [qazzaz.bilal@epa.gov]  
**Subject:** RE: Ozone 1-point QC Check Data Quality Evaluation and Next Steps; Addendum #1

Strike that, I think Ohio is not consistent in their response and I mixed that with the entire file.

Thank you,  
Jesse

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**From:** McGrath, Jesse  
**Sent:** Wednesday, April 26, 2017 10:02 AM  
**To:** Compher, Michael <compher.michael@epa.gov>; Hamilton, Scott <hamilton.scott@epa.gov>; Qazzaz, Bilal <qazzaz.bilal@epa.gov>  
**Subject:** RE: Ozone 1-point QC Check Data Quality Evaluation and Next Steps; Addendum #1

I very sure they've calculated the percent differences backwards in this file.  
I'm going to take a couple steps to confirm it, but they are doing

$(\text{AssessmentConcentration} - \text{MonitorConcentration}) / \text{MonitorConcentration} * 100$

And those should be reversed. It somewhat changes the results to do it different ways.

Thank you,  
Jesse

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**From:** Compher, Michael  
**Sent:** Monday, April 17, 2017 1:43 PM  
**To:** Hamilton, Scott <hamilton.scott@epa.gov>; Qazzaz, Bilal <qazzaz.bilal@epa.gov>; McGrath, Jesse <mcgrath.jesse@epa.gov>  
**Subject:** FW: Ozone 1-point QC Check Data Quality Evaluation and Next Steps; Addendum #1

FYI

Michael Compher  
Chief, Air Monitoring and Analysis Section  
Region 5 Air and Radiation Division  
U.S. Environmental Protection Agency  
Phone: 312-886-5745

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**From:** Papp, Michael  
**Sent:** Monday, April 17, 2017 1:37 PM  
**To:** Weinstock, Lewis <Weinstock.Lewis@epa.gov>; Judge, Robert <Judge.Robert@epa.gov>; Khan, Mazeeda <Khan.Mazeeda@epa.gov>; Chow, Alice <chow.alice@epa.gov>; Rinck, Todd <Rinck.Todd@epa.gov>; Compher, Michael <compher.michael@epa.gov>; Verhalen, Frances <verhalen.frances@epa.gov>; Davis, Michael <Davis.Michael@epa.gov>; Fallon, Gail <fallon.gail@epa.gov>; Flagg, MichaelA <Flagg.MichaelA@epa.gov>; Hall, Chris <Hall.Christopher@epa.gov>  
**Cc:** Payton, Richard <Payton.Richard@epa.gov>; Brown, Ethan <Brown.Ethan@epa.gov>; Wells, Benjamin <Wells.Benjamin@epa.gov>; Naess, Liz <Naess.Liz@epa.gov>; Rice, Joann <Rice.Joann@epa.gov>; Sather, Mark

<sather.mark@epa.gov>

**Subject:** Ozone 1-point QC Check Data Quality Evaluation and Next Steps; Addendum #1

We have been receiving a few questions about the current ozone data invalidation process. In order to alleviate the need to repeat the questions and to be consistent with our answers, I've added a file to the QA SharePoint site called "Ozone Data Invalidation Q&A". We have a few Regions asking questions that I have quickly posted to the site but will be summarizing them into a single document this week and adding to it as additional questions come in.

The file includes the memo and files that Lew Weinstock and Liz Naess sent out on Thursday, April 13, 2017 and a second file call "Q&As" which include email pdfs from regions who have sent us questions.

One question that we have considered is the impact of rounding convention on the MQO percent difference values around 7%, particularly any values between -7.4% and +7.4%. Since the QA Handbook Vol II validation templates changed this year with a January 2017 posting date, we did not have a definitive national rounding policy before that date (Region 4 did have a local policy) so monitoring organizations may have considered QC check percent differences of up to an absolute value of 7.4, either in their QAPP or as a matter of course, as meeting the 7% acceptance criteria. We think the Regions can be flexible on 1-point QC values with percent differences including and between -7.4 % and +7.4% but we believe any values beyond that tolerance represents a failed QC check leading to data invalidation.

We have posted a second Excel spreadsheet on the SharePoint site called "Ozone QC Concatenation" (also attached). On the "Data Invalidations" worksheet we concatenated all the failed QC checks (from the "failed QC Check" worksheet): those in pink shading are  $\geq +7.5\%$  or  $\leq -7.5\%$  while those in yellow are  $\leq \pm 7.4\%$ . The values not shaded are the rows in the original table sent out 4/13.

As an example, below we concatenated the 1-point precision check date of 2013-11-18 with the begin and end date of the data that the 1-point precision check represents. (2013-11-13 to 2013-11-23). The begin date for the 1-point precision check row (yellow shaded row) is a misnomer and was only used to pair up the two worksheets in the original 4/13 files. So in this example the -7.4% 1-point QC check could be considered acceptable for the 2013-11-13 to 2013-11-23 time period.

cbsa_name	begin_date	Pcheck_date	end_date	N_conc	priority	%diff
New Haven-Milford, CT	2013-11-13		2013-11-23	264	2	
New Haven-Milford, CT	2013-11-18	2013-11-18				-7.4

In the example below we see a more extensive time period (2014-06-03 to 2014-07-03) where there were checks greater and less than the 7.4 %. It does not appear that any corrective action was taken during this time period and we think the Region would have the discretion to say that the complete time period should be invalidated.

cbsa_name	begin_date	Pcheck_date	end_date	N_conc	priority	%diff
Atlantic City-Hammonton, NJ	2014-06-03		2014-07-13	974	1	
Atlantic City-Hammonton, NJ	2014-06-09	2014-06-09				-7.7
Atlantic City-Hammonton, NJ	2014-06-11	2014-06-11				-8.6
Atlantic City-Hammonton, NJ	2014-06-16	2014-06-16				-7.3
Atlantic City-Hammonton, NJ	2014-06-23	2014-06-23				-8.3
Atlantic City-Hammonton, NJ	2014-06-30	2014-06-30				-7.6
Atlantic City-Hammonton, NJ	2014-07-07	2014-07-07				-7.2

Please use your discretion in your discussion with the monitoring organizations.

-----Original Message-----

From: Weinstock, Lewis

Sent: Thursday, April 13, 2017 8:44 AM

To: Judge, Robert <[Judge.Robert@epa.gov](mailto:Judge.Robert@epa.gov)>; Khan, Mazeeda <[Khan.Mazeeda@epa.gov](mailto:Khan.Mazeeda@epa.gov)>; Chow, Alice <[chow.alice@epa.gov](mailto:chow.alice@epa.gov)>; Rinck, Todd <[Rinck.Todd@epa.gov](mailto:Rinck.Todd@epa.gov)>; Compher, Michael <[compher.michael@epa.gov](mailto:compher.michael@epa.gov)>; Verhalen, Frances <[verhalen.frances@epa.gov](mailto:verhalen.frances@epa.gov)>; Davis, Michael <[Davis.Michael@epa.gov](mailto:Davis.Michael@epa.gov)>; Fallon, Gail <[fallon.gail@epa.gov](mailto:fallon.gail@epa.gov)>; Flagg, MichaelA <[Flagg.MichaelA@epa.gov](mailto:Flagg.MichaelA@epa.gov)>; Hall, Chris <[Hall.Christopher@epa.gov](mailto:Hall.Christopher@epa.gov)>  
Cc: Payton, Richard <[Payton.Richard@epa.gov](mailto:Payton.Richard@epa.gov)>; Brown, Ethan <[Brown.Ethan@epa.gov](mailto:Brown.Ethan@epa.gov)>; Papp, Michael <[Papp.Michael@epa.gov](mailto:Papp.Michael@epa.gov)>; Wells, Benjamin <[Wells.Benjamin@epa.gov](mailto:Wells.Benjamin@epa.gov)>; Naess, Liz <[Naess.Liz@epa.gov](mailto:Naess.Liz@epa.gov)>; Rice, Joann <[Rice.Joann@epa.gov](mailto:Rice.Joann@epa.gov)>

Subject: URGENT ACTION – Invalidation of Ozone data in AQS due to QC issues

Importance: High

Good morning:

As you all are aware by now, we have recently identified ambient ozone data in AQS that was reported during periods of time when 1-point QC checks were outside the critical criteria in the QA Handbook and contained in approved monitoring organization QAPP's. We are currently in the middle of the ozone designations process and it is important that we maintain the integrity of that process. It is critical that we base our designations decisions on defensible data for areas both attaining and not attaining the standard. To this end, we believe that the data identified as outside these critical criteria be null coded in AQS so that the underlying design values supporting the designations process are based on valid data. We understand that there is limited time to complete this work due to the tight timelines for designations. Therefore, this process has been divided into two phases as explained below:

Phase 1:

These are high priority monitors whose 2014-2016 design value would change or become incomplete due to the data invalidations. Attached to this message is an Excel table that explicitly lists the monitors and periods of time for when ozone data should be null coded (coded as Phase 1). We ask that you communicate with the affected monitoring organizations to ensure that these data are invalidated in AQS no later than May 1, 2017 (we will be doing our design value pull from AQS on the morning of May 2). Luckily this first phase only affects about 80 monitors, as some states have already begun invalidating their data.

Phase 2:

The list of the remaining monitors that will have similar data invalidation actions are coded as Phase 2 in the Excel table. These monitors have a less immediate impact on designations so are being included in the Phase 2 action. We recognize that this phase affects a larger number of monitors, therefore we are providing more time to invalidate this data. Please work with your monitoring organizations to complete this exercise by August 1, 2017.

Additional details on the Excel table: The attachment contains three tabs: (1) Data Invalidations – which contains specific information for the data invalidation, (2) 2014-2016 Design Values – design values before and after ("a" added to column heading) data invalidations, and (3) Failed QC Checks – details on the actual QC checks. Please contact Liz Naess (Ben Wells is out of the office until 4/24/17) or Mike Papp with questions on the data retrieval (Liz/Ben) or associated QA issues (Mike).

For additional background information on this quality assurance issue, please refer to the attached memo entitled "Ozone 1-point QC Check Data Quality Evaluation and Next Steps".

We will be checking in periodically during our monthly conference calls to answer any questions and assess progress on this action. Thank you for your prompt attention to this matter.

Lewis Weinstock (Ambient Air Monitoring Group and Liz Naess (Air Quality Analysis Group)

